



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

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Project Title Mobile Message Propagating Protocol for Disconnected Bluetooth Based Ad Hoc Networks	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals In disaster situations, communication is vital for minimizing time wasted and lives lost. However, the failure of traditional communication infrastructure in these situations often hinders communication. The objective of this research is to develop and apply routing protocols to mobile Bluetooth ad hoc networks.</p> <p>Methods/Materials The research occurred during a period of over a year. I started by familiarizing myself and experimenting with Bluetooth on several layers. A C++ simulator was later created to test the theoretical aspects of my proposed protocol while real life conditions were explored using an Intel Edison microcontroller and iPhone 5.</p> <p>Results The proposed Message Propagating Protocol shows significant advantages over traditional connected routing protocols in terms of packet delivery rate and storage requirements. It guarantees message delivery with fewer hops and less overhead compared to traditional proactive and reactive routing paradigms. The results indicate that routing in disconnected networks is both practical and achievable in real world scenarios.</p> <p>Conclusions/Discussion Even though routing in Bluetooth ad hoc networks has received little attention in comparison to scatternet formation, the results of this research show that this area can make a difference in the performance of networks by minimizing network reformations. These findings can be applied to devices that are used in critical situations.</p>	
Summary Statement I designed a routing protocol which can be applied to disconnected Bluetooth ad hoc networks and achieve high delivery rate with minimal storage tradeoffs.	
Help Received I conducted the research and experiments without any outside aid.	